

CLAIMS

What is claimed is:

1. A wafer processing system comprising:
- 5 a load-lock having a single wafer support for accommodating only a single wafer at a time, the load-lock having an integral cooling unit for cooling a wafer;
- a transport module having a load chamber, a transfer chamber, and a pass-through chamber located between the load chamber and the transfer chamber, the load chamber being coupled to the load lock;
- 10 an intermediate process module coupled to the load chamber and the transfer chamber;
- a first set of process modules coupled to the load chamber; and
- a second set of process modules coupled to the transfer chamber.
2. The system of claim 1 wherein a process module in the first set of process modules includes a pre-clean module.
3. The system of claim 1 wherein a process module in the first set of process modules includes a physical vapor deposition module.
4. The system of claim 1 wherein a process module in the first set of process modules includes a chemical vapor deposition module.
5. The system of claim 1 wherein a process module in the second set of process modules includes a pre-clean module.
- 20 6. The system of claim 1 wherein a process module in the second set of process modules includes a chemical vapor deposition module.

7. The system of claim 1 wherein a process module in the second set of process modules includes a physical vapor deposition module.

8. The system of claim 1 wherein the single wafer support is a pedestal.

9. The system of claim 1 wherein the intermediate process module is configured as a degas module.

10. The system of claim 1 wherein the pass-through chamber is configured as a cooling station.

11. The system of claim 1 wherein the intermediate process module is configured as a pre-clean module.

12. The system of claim 1 wherein the intermediate process module is configured as a PVD module.

13. The system of claim 1 wherein the intermediate process module is configured as a CVD module.

14. A method for moving a wafer in a wafer processing system comprising:
transferring the wafer to a first process module coupled to a first chamber of a transport module;
cooling the wafer in a cooling station located between the first chamber of the transport module and a second chamber of the transport module;
transferring the wafer to a second process module coupled to the second chamber of the transport module;
transferring the wafer to a load lock coupled to the second chamber of the transport module; and
cooling the wafer in the load lock.

15. The method of claim 14 wherein the load lock is a single-wafer load lock having a single wafer support. *A*

16. The method of claim 15 wherein the single wafer support is a pedestal.

17. A wafer processing system comprising:

a load lock having an integral cooling unit for cooling a wafer;

a transport module having a first chamber, a second chamber, and a pass-through chamber between the first chamber and the second chamber, the first chamber being coupled to the load lock;

an intermediate process module coupled to the first chamber;

a process module coupled to the first chamber; and

another process module coupled to the second chamber.

18. The system of claim 17 wherein the load lock is a single-wafer load lock having a single wafer support. *B*

19. The system of claim 18 wherein the single wafer support is a water-cooled pedestal. *Bt*

20. The system of claim 17 wherein the intermediate process module is also coupled to the second chamber.

21. The system of claim 17 wherein the pass-through chamber is configured as a cooling station.

22. A method for moving a wafer in a wafer processing system comprising:
transferring the wafer from a load lock to an intermediate process module coupled to a load chamber and a transfer chamber, the load chamber being coupled to the load lock; *A*

transferring the wafer from the intermediate process module to a process module coupled to the transfer chamber;

transferring the wafer from a process module coupled to the transfer chamber to a pass-through chamber located between the load chamber and the transfer chamber;

cooling the wafer in the pass-through chamber;

transferring the wafer to a process module coupled to the load chamber;

transferring the wafer to the load lock; and

cooling the wafer in the load lock.

23. The method of claim 22 wherein the load lock has a single wafer support for accommodating a single wafer at a time.

24. The method of claim 22 wherein the load lock has a single water-cooled pedestal.

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